# REMARKS

Applicant hereby responds to the Office Action dated February 15, 2007, in the above-referenced patent application. Applicant wishes to thank the Examiner for carefully considering the application.

## Disposition of Claims

Claims 1-24 are currently pending. Claims 1, 9, 14, and 17 are independent. The remaining claims depend, directly or indirectly, from claims 1, 9, 14, and 17.

## Amendment to the Claims

Claims 1-24 have been amended to correct minor informalities. No new matter has been added by way of these amendments and none of the amendments is made in view of a prior art.

## Drawings

Applicant respectfully requests the Examiner indicate acceptance of the formal drawings filed October 9, 2003.

## Rejections under 35 U.S.C. § 103

Claims 1-24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Pub. No. 20030076448 (“Pan”) in view of U.S. Patent No. 6,870,956 (“Qi”).

For at least the reasons set forth below, the rejection is respectfully traversed.

The claimed invention is directed to a method and system for detecting *fade* in an area of each of a sequence of video frames. Independent claims 1 and 17 each require, in part, (i) calculating a *stochastic* measure of the area based on a standard deviation of differences in *pixel* values; and (ii) detecting fade in the area by comparing the stochastic measure with a given *noise level*. Independent claims 9 and 14 each require, in part, determining a difference between a current pixel value and a reference pixel value, subtracting a mean of a noise from the difference, and comparing an average with a given noise level. Pan and Qi, in contrast to the claimed invention, fail to show or suggest at least the above-mentioned limitations.

In the instant Office Action (page 2, lines 15-16), the Examiner asserts that Pan discloses a method of detecting "fade." This is respectfully traversed. Referring to Figs. 4 and 5 (relied upon by the Examiner), the system of Pan identifies "transitions," and then identifies "replay" based on the logo transitions. Indeed, the object of Pan is to detect the "replay" as clearly described throughout Pan. Although in paragraph [0040], Pan does mention that a "transition" may comprise a gradual fade in and out, the gradual fade in and out is *not* detected as explained in paragraph [0041]. Rather, "it is normally sufficient to select one frame with a distinguishable logo as a logo template to represent the *starting or ending logo transition*" (*see*, Pan, paragraph [0041]). Thus, when identifying a transition, the system of Pan simply neglects the gradual fade in and out, and only looks for an appearance or disappearance of the logo as the definition of the transition.

Further, the Office Action asserts that Pan discloses calculating a stochastic measure. This is also respectfully traversed. Pan is, in fact, completely silent with respect to a stochastic measure. Perhaps the Examiner has arrived at the conclusion that Pan discloses a "stochastic" measured based on that paragraph [0080] describes "probability" densities. However, as well known in the art, the use of a probability language is *not* an indication that the process it describes is stochastic. Indeed, paragraph [0081] clearly describes the probability density is "a probability describing non-logo frames." That is, because of the large number of frames, the appearance or disappearance of the logo is best estimated by the probability density, although such a process is *non-stochastic*. Furthermore, such a probability measure is with respect to a large number of *frames*. By contrast, the stochastic measure of the claimed invention is with respect to *pixel values*. Moreover, such a probability measure as described in Pan is related to appearance and disappearance of the log, *not* the fade of the logo as discussed above.

The instant Office Action further states that paragraphs [0036] and [0040] or Pan discloses a *noise* level and a threshold. This assertion regarding Pan is simply not true. The only part of the disclosure of Pan that discusses "noise" is paragraph [0075], where "noise" is noted as an adversary factor, but no quantitative description of noise such as a "noise level" is provided. This is not surprising, as Pan is aimed at obtaining a probability measure *among* the large number of *frames*, and "noise" is irrelevant in this probability measure.

Similar to Pan, Qi also fails to show or suggest the claimed invention as recited in independent claims 1, 9, 14, and 17 of the present application, or to supply what is missing in Pan. This is also evidenced by the fact that Qi was relied upon by the Examiner merely to supply a "standard deviation."

In the instant Office Action (page 2, the last line through page 3, line 1), the Examiner asserts that Qi discloses a shot boundary detection method which "relies upon standard deviation computations as a detection method *as opposed to* the use of histogram computation" (emphasis added). This is incorrect. Although Qi discloses "standard deviation," such a concept is not without context in the disclosure of Qi. Referring to, *e.g.*, col. 7, line 33, and col. 14, lines 14-15, Qi clearly describes that the "standard deviation" is a "standard deviation value of the *histogram* difference." Thus, contrary to the Examiner's assertions, Qi indeed relies upon the use of histogram computation. Further, Applicant respectfully submits that, the use of "key" words without their context is an indication that the Examiner, aided by the present application, has used hindsight reconstruction and picking and choosing the references to arrive at the claimed invention.

The Examiner's misreading of Pan and Qi is further evidenced in, for example, page 3, lines 14-16 of the instant Office Action, where it is asserted that in col. 11, lines 60-67 and col. 12, lines 1-3 Qi discloses "subtracting the given noise mean from the said difference and squaring the obtained value..." This assertion is again simply not true. The portion of Qi relied upon by the Examiner is completely silent with respect to "noise." Indeed, Qi only discloses, in the background section (col. 2, line 10), "strong noises" such as "loud noises" as adversary factors in prior art methods. Like Pan, Qi is completely silent with respect to a quantitative description of noise such as a *noise level.*

Regarding independent claims 9 and 14, the Examiner asserts that in paragraph [0076] Pan discloses "subtracting the given noise mean from the said difference and squaring the obtained value." This is incorrect. Paragraph [0076], and the remaining of Pan, are silent with respect to a given noise mean. The instant Office Action further includes numerous misinterpretations of Pan and Qi, such as the misinterpretation of the equation in paragraph [0078] of Pan.

Moreover, it is respectfully submitted that there is no motivation or suggestion to combine Pan and Qi. Pan is directed to detecting replay. Qi is directed to "shot" detection. The concept of "shot," as clearly defined in col. 1, lines 30-35 of Pan, refers to a block of a number of frames. Neither of the cited references is directed to detecting fade.

In view of the above, Pan and Qi, whether considered separately or in combination, fail to show or suggest the claimed invention as recited in independent claims 1, 9, 14, and 17 of the present application. In addition, there is no motivation to combine Pan and Qi. Thus, independent claims 1, 9, 14, and 17 of the present application are patentable over Pan and Qi for at least the reasons set forth above. Dependent claims 2-8, 10-13, 15, 16, and 18-24 are allowable for at least the same reasons. Accordingly, withdrawal of the rejection is respectfully requested.

## CONCLUSION

For these and other reasons, it is respectfully submitted that the rejection should be withdrawn, and all of the claims be allowed. Accordingly, reexamination, reconsideration and allowance of all the claims are respectfully requested.

Please direct all correspondence to **Myers Dawes Andras & Sherman LLP**, 19900 MacArthur Blvd., 11th Floor, Irvine, California 92612.

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 3, 2007.

By: Jessica A. Fisher.

Jessica Fisher

Signature

Respectfully submitted,

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Kenneth L. Sherman (Date)
Registration No. 33,783
Myers Dawes Andras & Sherman, LLP
19900 MacArthur Blvd., 11th Floor
Irvine, CA 92612
(949) 223-9600
(949) 223-9610 – Fax
USPTO Customer No.: 23386